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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/806,540

03/30/2001

John D. Gust JR.

9138-0032

1315

26707

7590

02/05/2004

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EXAMINER

HEALY, BRIAN

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 02/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/806,540

Applicant(s)

GUST ET AL.

Examiner

Brian M. Healy

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) 2-5 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 7-15, 17 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

These claims are rejected as being incomplete because they are dependent upon cancelled claim 2.

The amendment of 8/20/03 cancels claims 2-5.

The Notice of Abandonment, mailed 9/23/03 has been withdrawn. (See Paper No. 7).

In the previous office action of 2/11/03, the Examiner indicated claims 1-5 as containing allowable subject matter. This indication of allowable subject matter is withdrawn in view of the applied Gudesen et. al. reference. The Examiner regrets any inconvenience to Applicant caused by this action. In order to expedite prosecution of this application, claims 7-15, 17 and 18 will be treated as if they are ultimately dependent upon claim 1.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application

by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1,6,16 and 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Gudesen et. al., U.S.P. No. 6,005,791.

Gudesen et. al. 791' teaches in (Figs. 1-19) a magnetically activated optoelectronic logic gate 1-3 comprising means for receiving and storing electromagnetic radiation signal of visible wavelengths, magnetic field strengths and combinations thereof with means (Note Fig.12) for selectively accessing the stored signals to deliver them for signal processing. The memory substance 1 can undergo a state change (physical or chemical) in the presence of an applied magnetic, electromagnetic or electrical fields and be a photo reactive molecule that is capable of forming a transient species. The logic gates can be arrayed together to form an optical computer. The teachings of Gudesen et. al. '791 clearly, fully meets Applicant's claimed limitations.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gudesen et. al., U.S.P. No.6,005,791 in view of Gust et. al. (1997 article titled: "A CAROTENE-PORPHYRIN-FULLERENE TRIAD...").

The teachings of Gudesen et. al. has already been discussed.

Gudesen et. al. does not teach or suggest the use of a photo reactive material such as an electron donor (carotene), an electron acceptor (fullerene) and a chromophore (porphyrin) in an optical logic switch.

Gust et. al. (1997 article) teaches that electron donors, such as carotene and electron acceptors, such as fullerenes, and a chromophore, such as porphyrin can be used in photoinduced electron transfer devices. Gust et. al. also states fullerenes have several properties that make them useful in components of artificial reaction centers and other molecule-scale electronic devices, that is this material would be useful in optical switching.

The teachings of having the aforementioned, fullerenes, carotene and chromophore materials, used in the article of Gust et. al., would have been recognized in the pertinent art of Gudesen et. al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the optical logic switch of Gudesen et. al. to include carotenes, fullerenes and chromophore materials used in the photoinduced

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switching device of Gust, in order to perform molecular level photoinduced optical switching and/or optical logic.

The following references are also cited by the Examiner as being pertinent prior art: Song, U.S.P. No. 6,647,163 (Figs.1-9) and Lin et. al., U.S.P. No.4,689,793 (Figs.1-9(b)).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571) 272-2347. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernik can be reached on (703)308-4819. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brian M. Healy

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Primary Examiner
Art Unit 2874

A handwritten signature in black ink, appearing to read "Brian Healy". The signature is fluid and cursive, with a large loop at the end.

Brian Healy
Primary Examiner